Digitization, Curation, Georeferencing and Research of Fish: Fauna of Indiana

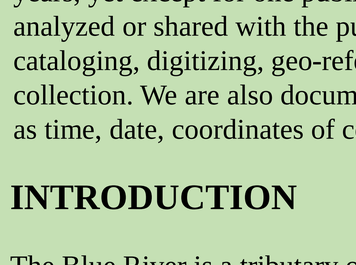
Kaycee Ranney[1] and Dr Suparna Mukhopadhyay[1]
[1]Department of Biology; Indiana University Southeast, New Albany, IN

ABSTRACT

Several surveys were conducted on freshwater fish in the Blue River and its tributaries by students of IUS under the supervision of Dr. Claude D. Baker and Dr. Bill J. Forsyth between 1973-1997. This impressive collection containing over 60 species of fish has been housed in the Life Sciences building for over 40 years, yet except for one publication this data has not been analyzed or shared with the public until now. We are currently cataloging, digitizing, geo-referencing and researching this fish collection. We are also documenting all relevant documents such as time, date, coordinates of collection for public outreach.

INTRODUCTION

The Blue River is a tributary of the Ohio river and is spread over 125,000 acres in Clark, Crawford, Floyd, Harrison and Washington counties in South central Indiana. Between 1973-1997 several surveys were conducted on freshwater mussels in the Blue River and its tributaries by students of Indiana University Southeast under the supervision of faculty members Dr. Claude D. Baker and Dr. Bill J. Forsyth. Fish samples collected during these surveys were preserved in 35% Ethyl alcohol. Over 60 species of fish are in this collection over 2500 samples.This impressive collection has been housed in the Department of Biology in the Life Sciences building for the past 40 years, yet except for one publication this data has not been analyzed or shared with the public until now. Cataloging and research of these fish collection started in Fall 2019 under the supervision of Dr. Mukhopadhyay. The fish are being organized and labeled in filing cabinets based on their taxonomy.
These collections are also being digitized and documented. Research is being conducted on the current distribution of a few species of interest. All collection locations are being documented using georeferencing. These fishes were collected from tributaries of the Blue river such as Laughery Creek, Little Blue River (Turkey Fork and South Fork), Little Indian Creek, Sugar Creek, Vernons Creek, Grahams Creek, and Silver Creek locations.



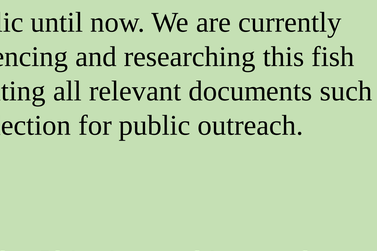


Fig. 2 An Ecological survey of Buck Creek, Harrison County, IN, Fall 1987 by IUS Students

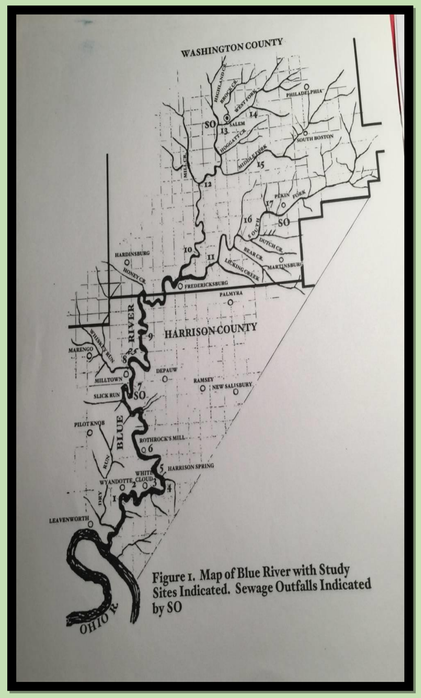
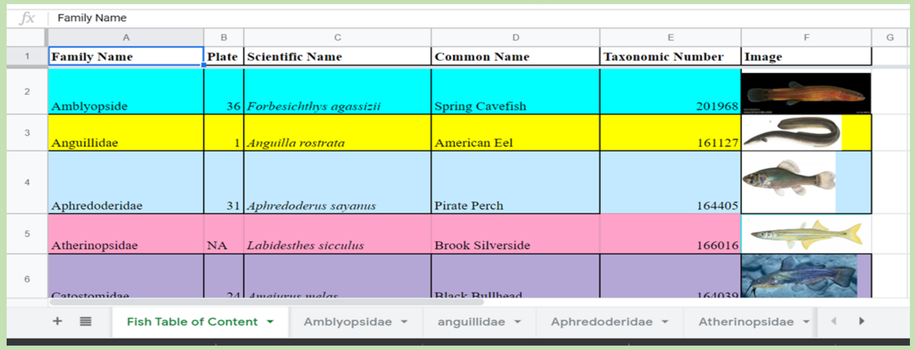


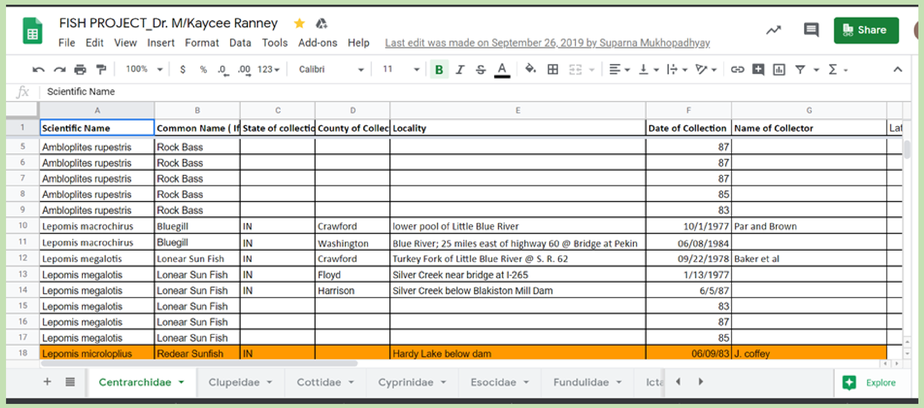
Figure 1. Map of Blue River with Study Sites Indicated. Sewage Outfalls Indicated by SO

Fig 2: Fish Collection



Family Name	Plate	Scientific Name	Common Name	Taxonomic Number	Image
Amblyopside	36	*Forbesichthys agassizii*	Spring Cavefish	201968	
Anguillidae	1	*Anguilla rostrata*	American Eel	161127	
Aphredoderidae	31	*Aphredoderus sayanus*	Pirate Perch	164405	
Atherinopsidae	NA	*Labidesthes sicculus*	Brook Silverside	166016	
Catostomidae	24	*Ameiurus melas*	Black Bullhead	164039	

Fig 5: Cataloging of the Fish Collection based on their Taxonomy (Family Name).



Scientific Name	Common Name	State of collectio	County of Collec	Locality	Date of Collection	Name of Collector
Ambloplites rupestris	Rock Bass				87	
Ambloplites rupestris	Rock Bass				87	
Ambloplites rupestris	Rock Bass				87	
Ambloplites rupestris	Rock Bass				85	
Ambloplites rupestris	Rock Bass				83	
Lepomis macrochirus	Bluegill	IN	Crawford	lower pool of Little Blue River	10/1/1977	Par and Brown
Lepomis macrochirus	Bluegill	IN	Washington	Blue River; 25 miles east of highway 60 @ Bridge at Pekin	06/08/1984	
Lepomis megalotis	Lonear Sun Fish	IN	Crawford	Turkey Fork of Little Blue River @ S. R. 62	09/22/1978	Baker et al
Lepomis megalotis	Lonear Sun Fish	IN	Floyd	Silver Creek near bridge at I-265	1/13/1977	
Lepomis megalotis	Lonear Sun Fish	IN	Harrison	Silver Creek below Blakiston Mill Dam	6/5/87	
Lepomis megalotis	Lonear Sun Fish				83	
Lepomis megalotis	Lonear Sun Fish				87	
Lepomis megalotis	Lonear Sun Fish				85	
Lepomis microlophius	Redear Sunfish	IN		Hardy Lake below dam	06/09/83	J. coffey

Fig 6: Cataloging of the Fish Collection based on their scientific and common name, date and location of collection.

METHODS

The fish collections are being classified based on their taxonomy, organized and labeled in filing cabinets. These collections and all relevant documentation are also being digitized in Excel in the form of a database. The excel spreadsheet is classified into 84 categories: based on the Family Name. There are currently 10 different locations. The other information's that are being documented in the database are date and location of collection, geo references as coordinates of the location, collectors name etc. Once the database is complete, we will start working on a web portal for this database.

RESEARCH

Once the documentation is complete, we will research on the current distribution of some of the species of interest. Based on current research according to two field guides some of these fishes are no longer found in the Blue River area like they were caught back in the 1980's. Doing research on why these fishes might have got locally extinct can help us understand if the change in the environment they live has cause their disappearance over time.

We have collected data which shows certain potential issues in the Indiana's Little Blue River such as overfishing or pollution that may have caused some of the fish to disappear. Other environmental factors might also be invasive to the fish population. This research is a documentation of history and this information is like a fossil record that allows a look into the past and compare it with the present and let us predict what could happen in the future.

FUTURE DIRECTIONS

We will continue to catalog, curate and digitize the entire collection and all relevant documents on the year, date , time of collection of the fish species. We will **Geo-reference** each sample and work on creating a **Web Portal** of our database for public outreach.

Acknowledgements

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